



# Source Water Assessment Program (SWAP) Report For Carver High School

## What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

## SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the  
Massachusetts Department of  
Environmental Protection,  
Bureau of Resource Protection,  
Drinking Water Program

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**Table 1: Public Water System (PWS) Information**

<i>PWS NAME</i>	Carver High School
<i>PWS Address</i>	60 South Meadow Road
<i>City/Town</i>	Carver, Massachusetts
<i>PWS ID Number</i>	4052064
<i>Local Contact</i>	Paul McDonald, Certified Operator
<i>Phone Number</i>	(508) 866-6138

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	4052064-01G	295	844	High

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

### Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

### This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

## 1. Description of the Water System

The Carver High School receives its water from well #1 which is located approximately 700 feet northwest of the main school building. Additionally, well #1 is used for irrigation of approximately 17 acres of playing fields. Well #1 is a 56 foot gravel packed well. The well is located in a wooded area in a well house identified with a sign, "Drinking Water Supply Area". The school owns all the land encompassed by the Zone I. This meets DEP's restrictions, which only allow water supply related activities in the Zone I. Well #1 has a Zone I of 295 feet and an Interim Wellhead Protection Area (IWPA) of 844 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. Emergency power

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

is provided by a diesel fuel generator.

#### Water quality:

The well serving the facility is treated with potassium hydroxide for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

## 2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

#### Key issues include:

1. **Aboveground Storage Tanks (AST) with diesel fuel; and**
2. **Fertilizer and Pesticide use (Athletic Fields),**
3. **Wastewater Treatment Plant,**
4. **Stormwater Catchbasin,**
5. **Oil/hazardous material storage.**

The overall ranking of susceptibility to contamination for the well is **High**, based on the presence of at least one High threat land use or activity in the IWPA, as seen in Table 2.

1. **Aboveground Storage Tank (AST)** – There are two (2) 250 gallon diesel AST without secondary containment located in the maintenance area within the school building. The diesel tanks are for the backup generator. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the chemicals they store.

#### Recommendation:

- v Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold the complete liquid volume, should a spill occur. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. The Department recommends that you consult with the local fire Department for any additional local code requirements regarding AST. If you need to store fuel for power pumps, the drinking water program recommends that you consider using alternative fuels, such as natural gas or propane.

**Table 2: Table of Activities within the Water Supply Protection Areas**

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage, use, of oil/ hazardous materials	No	Yes	High	Maintenance area contains fertilizer, fuel storage, lawn equipment, paint, cleaning supplies etc.
Fuel Storage Above Ground	No	Yes	Moderate	Two (2) 250 gallons diesel fuel tanks for backup generator
Athletic Field	No	Yes	Moderate	Fertilizer and pesticide use
Wastewater Treatment Plant	No	Yes	Moderate	Ground water discharge permit
Parking lots & roads	No	Yes	Moderate	Limit road salt usage
Structures	No	Yes	-	

\* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

2. **Fertilizer and Pesticide Use (Athletic Fields)** - A majority of the 17 Acres of Athletic Fields are located in the IWPA for the well. Fertilizer and pesticides used to promote green fields and control weeds, insects and plant diseases have the potential to contaminate the water source.

### Recommendation:

- v Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property (refer to Fertilizer and Pesticide use fact sheets attachments).

3. **Waste Water Treatment Plant** - The Carver High school has a wastewater treatment facility located within the IWPA approximately 750 feet southeast of well #1. The discharge for the wastewater treatment plant for the school is located approximately 750 feet to the northwest of the water supply of well. Four (4) monitoring wells surrounding the discharge (infiltration beds) are monitored on a quarterly basis for pH, specific conductance, ammonia, nitrate, chloride, and annually for volatile organic compounds VOCs. All four drains within the building discharge to the wastewater treatment plant. The facility was issued a ground water discharge permit on November 28, 1992 from DEP. The pending permit renewal and plant modifications presently in the planning stages will upgrade the plant to have denitrification capability.

### Recommendation:

- v Comply with your ground water discharge permit including but not limited to the effluent limits, monitoring and reporting requirements and supplemental conditions specified in your permit as amended.

4. **Storm Water Catch Basin** - Catch basins transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

### Recommendation:

- v Work with the Town to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in storm runoff. All sediments and hydrocarbons (i.e. Oil/water separators) should be properly handled and disposed in accordance with

local, state and federal guidelines regulations. Catch basin cleanings are classified as a solid waste and must be handled and disposed of in accordance with all Department regulations, policies and guidance.

5. **Oil/hazardous Materials** - The facility currently participates with the Town of Carver in its household hazardous waste collection to discard many of its spent chemicals. Staff should be trained on proper transportation and disposal of hazardous materials.

### Recommendation:

- v Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. Post labels as appropriate on raw materials and hazardous waste. Businesses and agencies that wish to participate at one day hazardous waste collections must preregister with DEP as a very small

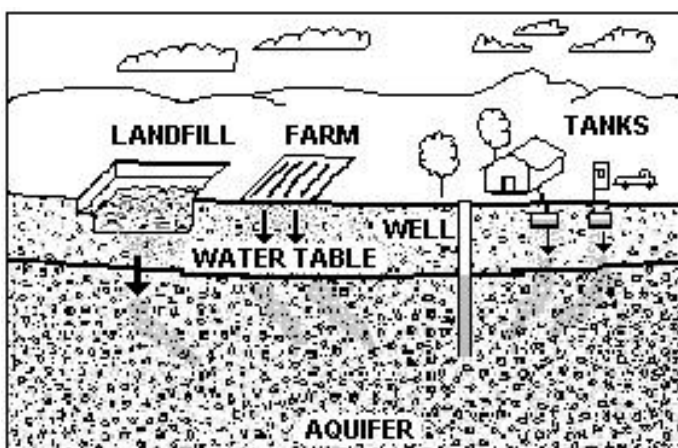


Figure 1: Example of how a well could become contaminated by different land uses and activities.

### For More Information:

Contact **Mark Dakers** in DEP's **Lakeville Office** at (508) 946-2847 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:  
[www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/)

### Additional Documents:

To help with source protection efforts, more information is available by request or online at [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/), including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

quantity generator (refer to attachment: *Generator Registration Form*) and must receive a receipt showing the content and quantity of the material and date delivered for their records (refer to attachment: *One Day Hazardous Waste Collection Fact Sheet*).

### Other activities noted during the assessment:

A floor drain was observed within the school bus maintenance facility located to the north northeast of the Carver High School well. The floor drain leads to an oil/water separator that is connected to a dry well. The dry well is located just outside of the IWPA but still may pose a threat to the Carver High School well and a more immediate threat to a private well located on the bus maintenance grounds. The floor drain at the bus maintenance facility is a concern due to the storage of gasoline, oil, vehicle storage and maintenance, vehicle washing and other chemical storage. The Department has provided technical assistance to the Town to bring the floor drain into compliance with the Department's Underground Injection Control (UIC) regulations. The Town of Carver is in the final stages of bringing the floor drain into compliance with the Department's regulations.

Implementing the key recommendations above will reduce the system's susceptibility to contamination.

## 3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The Carver High School is commended for its current protection measures. As part of its educational efforts regarding public water supply protection, chemistry lab students are brought to well #1. The Carver High School should review and adopt the **key** recommendations above and the following:

### Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.

### Facilities Management:

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.

### Planning:

- ✓ Work with local officials in Carver to include the Carver High School IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and

incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

### Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and

Implementation” at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

#### **4. Attachments**

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form
- Fertilizer Use Fact Sheet
- Hazardous Waste/Waste Oil Generator Registration Form
- One Day Hazardous Waste Collection Fact Sheet